

Claims

1. A bracket arrangement for removable attachment to the upper regions of a ladder, wherein the bracket has a pair of laterally spaced apart arms for adjustably rotatable attachment to respective sides of the ladder, the arms extending generally away from the ladder towards a roof of a building when the ladder is used against the side of said building to gain access to the roof, wherein the arms are so shaped, that they extend not in parallel arrangement from the ladder, but diverge, so as to provide inherent bracing by such geometric arrangement, and wherein the angle between the arms and the plane of the ladder is adjustable to suit varying conditions of use, the bracket having a pair of braces, each attached to respective sides of the ladder and adjustably rotatable about the point at which each is attached and extending from the ladder on respective sides thereof for locking each respective arm of the bracket so as to maintain each arm in predetermined angular relationship with respect to the plane of the ladder, the bracket having a cross member extending at least between the free ends or free end regions of each arm for placement against the roof of the building, wherein the cross member is adapted to prevent the bracket, and hence the ladder, moving sideways during use.  
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2. A bracket arrangement according to claim 1, wherein the end or end region of each brace remote from the ladder, is connected to the corresponding free end region of each respective arm, or is located elsewhere along the length of the arm, being connected thereto in adjustably rotatable fashion.  
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3. A bracket arrangement according to claim 2, wherein the angular relationship of each component and hence the overall geometry of the arrangement is determined by having one or more points for affixing each component to the other, along either any or all of the stile of the ladder, the arm, or the brace, to allow for adjustment as required.  
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4. A bracket arrangement according to any one of the preceding claims, wherein the means to prevent the bracket, and hence the ladder, moving sideways during use, and to protect the roof sheeting at the point of contact, are provided by the cross member having a replaceable anti-slip cover.
5. A bracket arrangement according to any one of the preceding claims, wherein the cross member is provided with means to allow it to be temporarily affixed to the roof by having a series of holes or slots therethrough, so as to allow a screw or other fixing means to be located therethrough for temporarily affixing the cross member to the roof.
10. 6. A bracket arrangement according to any one of the preceding claims, wherein a further plate is provided extending at right angles to the said cross member which gives greater flexibility in finding suitable positions for attachment.
7. A bracket arrangement according to any one of the preceding claims, in which the pair of arms and the pair of braces associated therewith are affixed to the ladder with removable pins inserted through holes in the ends of the arms and braces where they are to be attached to the ladder, the pins passing through corresponding holes in the stiles forming the sides of the ladder.
15. 8. A bracket arrangement according to claim 7 in which the pins are secured by being split pins or are affixed with cir-clips or the like.
20. 9. A bracket arrangement according to any one of claims 1 to 6, in which the pair of arms and the pair of braces associated therewith are affixed to the ladder by means of clamps affixed either around the styles, or around the rungs, at least at the outer reaches thereof to avoid difficulty in otherwise using the rungs of the ladder.
25. 10. A bracket arrangement according to any one of the preceding claims, in which the bracket is for use with ladders having hollow rungs, and there is provided a rod or hollow tube which extends between the respective ends or end regions of

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the arms and braces where they to be attached to the ladder, and which is caused to pass through one of the hollow rungs of the ladder.

11. A bracket arrangement according to claim 10, in which one such rod or tube passes through one rung for connection to respective ends of the arms, whilst  
5 another passes through another rung, for connection to respective ends of the braces.
12. A bracket arrangement according to claim 10 or claim 11 in which suitable means for removably securing the end regions of the rods or hollow tubes to the respective arms or braces as the case may be is provided.
- 10 13. A bracket arrangement according to claim 12 in which the ends of the rods or tubes are threaded, either externally or internally to accommodate a nut in the former case, or a screw in the latter, for joining the rod or tube with the respective arms and braces.
14. A bracket arrangement according to claim 12, in which the means of removably  
15 interconnecting the rod or tube with the arms or braces is provided by means of an expanding bolt or screw arrangement, where tightening a bolt or screw causes material such as rubber or elastic material around the screw or bolt which is located in a hollow end of the rod or tube, to expand and engage in locking arrangement with the interior of the hollow portion.
- 20 15. A bracket arrangement according to any one of the preceding claims, in which the two arms and the braces are all identical, whilst the material for the cross member as well as the two rods or tubes required to connect each respective pair of arms and braces through the rungs of the ladder, is cut from a common length of material according to the size of ladder to which the bracket is to be fitted,  
25 thereby greatly reducing the cost of manufacture.
16. A bracket arrangement substantially as herein described with reference to the drawings.